66TH CONFERENCE ON EXCEPTIONAL CHILDREN

Reading Literacy for Students with Low Vision

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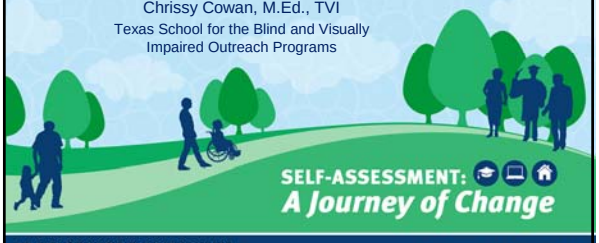

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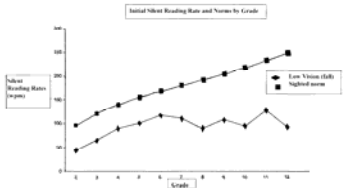
Learning to be literate makes the chances for success much greater

Scary stuff……

Present Levels of Literacy Functioning for Students with Low Vision (Carver, 1989)



It's time we beef up our LMA

What I see:

- Clinicians, TVIs, and/or parents prescribe print size and viewing conditions without adequate data that will stick with the student for his/her entire time in school

The mechanics of reading with low vision

VI support to the reading literacy program requires VI decisions:

- Should print size be enlarged?
- Should viewing distance/position be changed?
- Should optical or electronic magnifications systems be used?
- Should lighting be modified?
- Should alternatives be used (braille, speech-output systems)

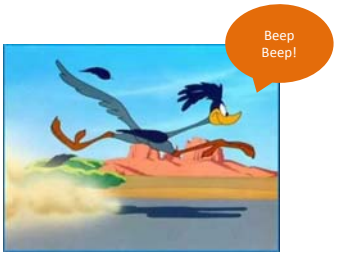
Visual factors affect reading rate, fluency, & stamina

- Acuity reserve (print size relative to acuity threshold)
- Contrast reserve (print contrast relative to contrast threshold)
- Visual/perceptual span (the range of letters that can be recognized reliably without moving the eyes)
- Lighting
- Size and location of a scotoma

Data we can collect on our LMA

- **Reading speed**
- **Reading fluency**
- **Reading stamina**

Reading Speed



When testing reading speed in relation to visual efficiency, think in terms of…….

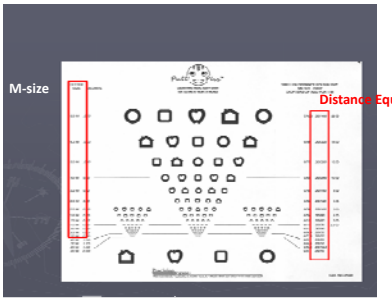
Critical Print Size vs. Comfort Zone

- CPS is the smallest print that can be read at the maximum speed
- Determined by measuring reading speed as the reader negotiates progressively smaller samples of printed material
- The critical print size will not always be comfortable to read for long

Reading **speed** depends upon

- Print size
- Visual skills
- Print layout
- Cognitive demands
- Processing demands

Know your print notations



Example: 2.5M @ 40 cm is equivalent to 20/125

Know what the numbers mean

2.5M @ 40 cm
is about 3 mm

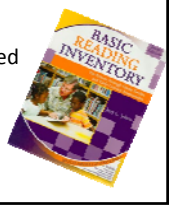
3 mm print

To identify best print size for reading:

- Identify threshold (smallest line read)
- Identify current print size and reading duration required (target)
- Identify optimal environmental conditions
- Combine with:
  - Reading efficiency skills
  - FVE/LMA

Determining Speed & Grade Level: Conducting the **Jerry Johns BRI**

- Graded word lists
  - Used to determine instructional level
  - 6 incorrect = frustration
- Graded reading passages
  - Timed
  - Record words missed or self-corrected
  - Subtract missed words from wpm
  - Listen to "flow"

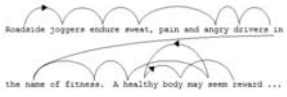


Score Brittney as she reads "Elizabeth Meets Darcy"

Reading speed is affected by **Perceptual Span**

Perceptual span:

- The length of the group of letters or short words encompassed in a fixation—typically 7-10 letters



Magnification will affect perceptual span

- As the size of letters increases, the perceptual span decreases
- Goal:

comfortable working distance +

correct amount of magnification

Strike a happy balance

- If print is too large, reading speed will be slower
- If print size is too small, reading speed will be slower
- If print is closely spaced, reading speed will be slower

Did you crack the code?

Hint…..

The moral to this story….
bigger (print) is not always better!

Large Print vs. Optical Devices

Large Print

- Reading speeds plateau
- Costly
- Lag time delivery to school
- Cumbersome
- Rejected by students
- Poor graphics
- Difficult to find outside of school and after high school
- Not necessarily “large”

Optical Devices

- Reading speeds continue to increase
- Increased access to a wide range of materials (what all kids are looking at)
- Require clinical low vision evaluation
- Require training with TVI/COMS
- Locus of control is with the student

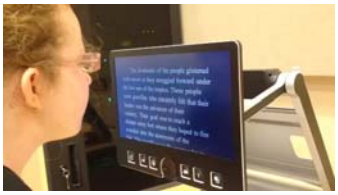
Increase access with the correct tools

There’s no large print on the job!

Lexie with VisioBook

Notice:

- Posture
- Scanning
- Print size
- Fluency



VisioBook $3,000.00

Lexie with Eschenback SmartLux

Note:

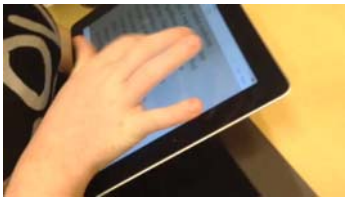
- Tracking speed
- Head movement
- Maintenance of focal distance
- Print size
- Fluency

SmartLux $595-$773

Lexie with iPad

Notice:

- Tracking speed
- Head movement
- Maintenance of focal distance
- Print size
- Fluency



iPad starts at $297

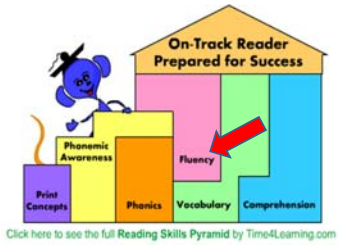
What Lexie thinks

We have to get beyond…

"They ALL want an iPad," and recognize what a powerful visual tool this is for students with low vision.

Use student data to support AT purchases!

Reading Fluency



Based on student journals in a study by Jolliffe & Harl's (2008), college freshmen students spent…..

- an average of 2 hour and 43 minutes per day on academic + non-academic reading:
  - 1 hour and 24 minutes per day on academic reading
  - average of 54 minutes a day to nonacademic reading involving technology—Facebook profiles, emails, instant messages, Internet sites
  - average of 25 minutes per day on nonacademic reading that did not involve technology—magazines, books, newspapers

What reading fluidly looks like in an adult with low vision

Brandi has ONH with 20/400 acuity in one quadrant of one eye

41 year old (Brandi) with 20/400 in one quadrant of one eye, ONH:

- One minute timing: 273 wpm
- Reading distance: 2”
- Device used: +8 microscopic reading glasses
- Sustained reading
  - First 5 minutes: 186 wpm
  - Second 5 minutes: 164 wpm

Some fluency materials

- Dibels (free)
  - https://dibels.uoregon.edu/market/assessment/materialdownload?agree=true
- Read Naturally-Reading Fluency Progress Monitor
- Developmental Reading Assessment (DRA)

Listen to two students read

- Fill in your Jerry Johns record sheet for two 5th grade students and calculate wpm for each
  - Kayla: ONH/SOD 20/160 RE; 20/320 LE
  - Sarah: Stargardt Macular Dystrophy; 20/200

Kayla: 6th grade
ONH/SOD 20/160 RE; 20/320 LE

Video of Kayla reading "The Mystery" with EasyPocket Magnifier

Kayla: 6th grade
2nd try on 6th grade passage

Video of Kayla reading "Keep Your Distance" with iPad

Sarah: 5th Grade
Stargardt Macular Dystrophy; 20/200

Video of Sarah reading “The Mystery” Gr. 5

Sarah, second story

Video of Sarah reading “The Hungry Bear”

Next steps for these 2 students

- Kayla?
- Sarah?

Reading Stamina

Video of a process to determine stamina

TSBVI Distance Learning

Paths to Literacy

Introducing the Task

- Tell the student you will be testing reading stamina by having him read silently for 20 minutes while you time him, then you will ask him to recap what he read.
- Tell him you cannot talk to him or help him with any words as he reads

- Tell him you will tap him on the shoulder after 10 minutes, and want him to quickly point to the word he is on, but to continue reading.
- Practice this briefly (on one sentence).
- Ask him to tell you when he is comfortable with beginning.

- Begin timing, tap on shoulder after 10 minutes, on your copy mark the word he pointed to, and mark the stopping point after the next 10 minutes (20 minutes total reading time).
- Note reading distance throughout.
- Ask student to recap, or, ask prepared comprehension question for key points.
- Record time for first 10 minutes, and time for 2nd 10 minutes. Compare.

Let's do the math:

- 1st 10 minutes: read 2600 words

2600 words/10 minutes= 260 wpm

- 2nd 10 minutes: read 2000 words

2000 words/10 minutes = 200 wpm

This student averages 230 wpm, but starts to slow down after the first 10 minutes

Take a longish break (15 minute walk to relax eye muscles is best) and repeat with 18 point font, continuing to read where she left off on the 21 point font.

DO NOT HAVE HER RE- READ PREVIOUS MATERIAL

Interpretation: Eureka!!

- Look at your data to decide whether or not differences between reading behaviors are educationally significant
- Look at published charts of reading rates to compare your student to the students who do not have a visual impairment

2006 Hasbrouck & Tindal Oral Reading Fluency Data

Grade	Percentile	Fall WCPM*	Winter WCPM*	Spring WCPM*	Avg. Weekly Improvement**
1	90		81	111	1.9
	75		47	82	2.2
	50		**23**	**53**	**1.9**
	25		12	28	1.0
	10		6	15	0.6
2	90	106	125	142	1.1
	75	79	100	117	1.2
	50	**51**	**72**	**89**	**1.2**
	25	25	42	61	1.1
	10	11	18	31	0.6
3	90	128	146	162	1.1
	75	99	120	137	1.2
	50	**71**	**92**	**107**	**1.1**
	25	44	62	78	1.1
	10	21	36	48	0.8

From: http://www.readingrockets.org/article/31295/

Subsequent Session(s):

- On separate days, collect additional information on stamina using reading samples with progressively smaller print and the magnifier the student has been taught to use efficiently. Your goal is 12 point print.

Making a Decision

- If 2 media are similar, consider the least restrictive option as the desirable medium
- If reading regular print is less efficient, consider need for low vision evaluation to explore magnification. Do not decide that the use of LP will be the most efficient medium indefinitely
- If reading regular print w/ an optical device is less efficient, consider the need for additional instruction and practice in the use of the device

Determining factors:

- If regular print is as efficient or more than large print and there are no concerns for stamina or reading efficiency, consider using regular print as primary reading medium.
- If there are any concerns about stamina or reading efficiency, intervention is indicated
- If large print is more efficient, regardless of whether there are any concerns from others, intervention is indicated

Before switching media you should provide targeted instruction to increase print reading speed and stamina

3 Activities for Increasing Reading Speed or Rate

- Speed drills-To conduct a speed drill, have the student read a list of words for 1 minute as you record the number of errors. You may use a high-frequency word list
- Use a marketed reading program with one-minute timings which employ three stimuli: phonics, sight phrases, and reading short stories.
- Repeated readings

One technique that works well with students with low vision:

- Repeated readings-The repeated readings technique is designed for children who read slowly despite adequate word recognition (Samuels, 1979). For this procedure, the child reads the same passage over and over again.

One Activity for Increasing Reading Stamina

- After you collect data on stamina:
  - Use your data to set a goal for increasing stamina
  - Select materials that match the student's experience and interests
  - Keep a record of progress

Set a Goal

Select reading material

Monitor Progress

Keeping Track of Stamina

Date	Material Read	Time Started	Time Stopped	Total Time Read	# of Breaks
11/11	Hunger Games	2:30	2:45	15 min.	0
11/12	Hunger Games	1:15	2:00	45 min.	1 for 5 minutes
11/13	The Walking Dead (comic)	1:30	2:30	1 hour	1 for 10 minutes

For struggling readers, consider audio assisted reading and literacy software

- Audio assisted reading
  - Method of using recorded books along with the corresponding book in regular print, large print, video-magnified print, or braille
  - See Ike Presley article, *Audio Assisted Reading,* for step-by-step instructions
- Literacy software, such as *Read & Write* (http://www.texthelp.com/North-America)

optical device

iPad

braille

audiobooks

audiobook + print text

Literacy Tools

When a comfortable level of speed and stamina is not readily attainable, the team needs to add other literacy tools